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SUPERFUND DIVISION

February 2, 2012

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
901 North 5th Street
Kansas City, KS 66101

Re: National Mine Tailings Site Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period December 1, 2011 through December 31, 2011 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0600.

Sincerely,

A handwritten signature in black ink, appearing to read "Ty L. Morris", is written over the typed name and title.

Ty L. Morris, P.E., R.G.
Vice President

TLM/jms
Enclosure

c: Mark Nations – TDRC
Matt Wohl – TDRC (electronic only)
Steve Batts – TDRC (electronic only)
Kevin Lombardozzi – NL Industries, Inc.
John Kennedy – City of Park Hills
Norm Lucas – Park Hills – Leadington Chamber of Commerce
Kathy Rangen – MDNR
Tim Skoglund – Barr Engineering

40385935



Superfund

National Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: December 1, 2011 – December 31, 2011

1. Actions Performed and Problems Encountered This Period:

- a. Work at the site continued on the task of covering the southern slope of the main chat pile with rock. This work included placing a 6-inch layer of crushed rock filter on the graded surface and a 12-inch layer of slope riprap on top of the crushed rock filter. As of the end of the period, work on this task had been completed on all of the slopes including the benches, except for the slope and the bench 50 feet on either side of the down chute located near Easting Coordinate 817300.
- b. Work on the Piramal Glass property west of Forest Street, across from the Lee Mechanical office building, continued. This work focused on surveying the area for the purposes of developing the design for completing grade work in this area. As of the end of the period, approximately half of the area had been surveyed.
- c. Work also continued on the task of constructing the slopes adjacent to the railroad tracks north of the main chat pile and the slopes on the south side of the Lee Mechanical property to the final subgrade elevations. As of the end of the period, work on this task had been completed.

Once these slopes had been surveyed and found to be within the grade tolerances identified in the Specifications, work began on the task of covering these slopes with rock. This included a 6-inch layer of crushed rock filter and a 12-inch layer of slope protection rock. As of the end of the period, work on this task had been completed.

- d. Work at the site continued on the task of meeting with the landowners who may be affected by the removal action activities. This included meeting with landowners who signed an access agreement prior to April 1, 2008, which needed to be amended, as well as landowners who have not signed agreements. As of the end of the period, the following had been accomplished:

Landowners that own property within the site boundary

Total number of landowners = 22

Landowners who signed an access agreement prior to 04/01/08 = 18

Landowners who signed an access agreement after 04/01/08 = 1

Landowners who are reviewing the access agreement = 3

Landowners who have refused to sign the access agreement = 0

Landowners who still need to be met with concerning the access agreement = 0

Total number of landowners who need to sign the amendment letter = 18

Landowners who have signed the amendment letter = 16

Landowners who are reviewing the amendment letter = 1

Landowners who refused to sign the amendment letter = 0

Landowners who still need to be met with concerning the amendment letter = 1

(Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

Landowners that own property immediately adjacent to the site boundary

Total number of landowners = 27

Landowners who signed an access agreement prior to 04/01/08 = 11

Landowners who signed an access agreement after 04/01/08 = 6

Landowners who are reviewing the access agreement = 4

Landowners who have refused to sign the access agreement = 3

Landowners who still need to be met with concerning the access agreement = 3

Total number of landowners who need to sign the amendment letter = 11

Landowners who have signed the amendment letter = 11

Landowners who are reviewing the amendment letter = 0

Landowners who refused to sign the amendment letter = 0

Landowners who still need to be met with concerning the amendment letter = 0

(It is not anticipated that it will be a challenge to work around the property owned by the three landowners that refused to sign the access agreement based on location of the property in relationship to the work that needs to be completed. Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

2. Analytical Data and Results Received This Period:

- a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.
- b. During this period, the Ambient Air Monitoring Report for third quarter 2011 and October 2011 were received. Any issues identified in these reports are discussed below. A copy of these documents has been sent to your attention.

The third quarter 2011 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 7/4/11 due to the holiday.
- No samples were taken with the TSP monitors on 7/18/11 and 7/19/11 due to the entire crew being in training.
- There was a QA blank filter associated with the National #2 TSP and PM₁₀ monitors on 7/26/11.
- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 9/5/11 due to the holiday.

The October 2011 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 10/20/11 due to training.

3. Developments Anticipated and Work Scheduled for Next Period:

- a. Resume stripping activities in the Thin Tailings Area.
- b. Continue removing slope fill from the main chat pile.
- c. Continue constructing the slopes of the Chat Pile Area.
- d. Continue rocking portions of the Chat Pile Area and East Erosion Area that have been constructed to the final subgrade elevations.
- e. Finish the detailed design on the portion of the Piramal Glass property located west of the Lee Mechanical office building.
- f. Continue constructing the eastern buttressing slope between Northing Coordinates N737900 and N738400.
- g. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- h. Complete air monitoring activities as described in the Removal Action Work Plan.
- i. Continue efforts to contact and meet with the landowners identified as potentially being affected by the removal action activities so that access agreements can be obtained.

4. Changes in Personnel:

- a. None.

5. Issues or Problems Arising This Period:

- a. None.

6. Resolution of Issues or Problems Arising This Period:

- a. None.

End of Monthly Progress Report

December 28, 2011

Allison Olds
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109
TEL: (573) 638-5007
FAX: (573) 638-5001



RE: National MTS-25/86-0003

WorkOrder: 11120954

Dear Allison Olds:

TEKLAB, INC received 2 samples on 12/21/2011 10:00:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com



Report Contents

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

This reporting package includes the following:

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Chain of Custody	Appended

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Abbr Definition

- CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
- DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
- DNI Did not ignite
- DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
- ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
- IDPH IL Dept. of Public Health
- LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
- LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
- MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
- MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
- MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MW Molecular weight
- ND Not Detected at the Reporting Limit
- NELAP NELAP Accredited
- PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
- RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
- RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
- SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
- Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
- TNTC Too numerous to count (> 200 CFU)

Qualifiers

- | | |
|--|--|
| # - Unknown hydrocarbon | B - Analyte detected in associated Method Blank |
| E - Value above quantitation range | H - Holding times exceeded |
| J - Analyte detected below quantitation limits | M - Manual Integration used to determine area response |
| ND - Not Detected at the Reporting Limit | R - RPD outside accepted recovery limits |
| S - Spike Recovery outside recovery limits | X - Value exceeds Maximum Contaminant Level |



Case Narrative

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Cooler Receipt Temp: 3.6 °C

Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	kmcclain@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2012	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2012	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2012	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2012	Springfield
Arkansas	ADEQ	88-0966		3/14/2012	Collinsville
Illinois	IDPH	17584		4/30/2012	Collinsville
Kentucky	UST	0073		5/26/2012	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2012	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Lab ID: 11120954-001

Client Sample ID: Nat-East

Matrix: AQUEOUS

Collection Date: 12/20/2011 14:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	75		228	mg/L	1	12/22/2011 16:46	R158102
STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		8.08		1	12/21/2011 16:44	R158038
STANDARD METHODS 18TH ED. 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		500	mg/L	1	12/22/2011 6:45	R158019
STANDARD METHODS 18TH ED. 2540 C (TOTAL)								
Total Dissolved Solids	NELAP	40		568	mg/L	2	12/21/2011 14:13	R158082
STANDARD METHODS 18TH ED. 2540 D								
Total Suspended Solids	NELAP	6		144	mg/L	1	12/21/2011 13:48	R158073
STANDARD METHODS 18TH ED. 2540 F								
Solids, Settleable	NELAP	0.1		0.5	m/L	1	12/21/2011 13:50	R158035
STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		1.6	mg/L	1	12/23/2011 8:07	R158167
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	12/23/2011 18:56	73867
Zinc	NELAP	10.0		19.1	µg/L	1	12/23/2011 18:56	73867
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	12/22/2011 17:35	73808
Zinc	NELAP	10.0		316	µg/L	1	12/22/2011 17:35	73808
STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00	X	5.29	µg/L	1	12/22/2011 16:33	73810
STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	20.0	X	314	µg/L	10	12/23/2011 12:31	73807

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Lab ID: 11120954-002

Client Sample ID: Nat-NW

Matrix: AQUEOUS

Collection Date: 12/20/2011 14:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		37	mg/L	1	12/23/2011 15:41	R158144
STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		8.02		1	12/21/2011 16:46	R158038
STANDARD METHODS 18TH ED. 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		160	mg/L	1	12/22/2011 6:45	R158019
STANDARD METHODS 18TH ED. 2540 C (TOTAL)								
Total Dissolved Solids	NELAP	20		174	mg/L	1	12/21/2011 14:15	R158082
STANDARD METHODS 18TH ED. 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	12/21/2011 13:50	R158073
STANDARD METHODS 18TH ED. 2540 F								
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	12/21/2011 13:50	R158035
STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		2.3	mg/L	1	12/23/2011 8:07	R158167
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	12/23/2011 19:02	73867
Zinc	NELAP	10.0		< 10.0	µg/L	1	12/23/2011 19:02	73867
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	12/22/2011 17:40	73808
Zinc	NELAP	10.0		< 10.0	µg/L	1	12/22/2011 17:40	73808
STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00		< 2.00	µg/L	1	12/22/2011 16:50	73810
STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00		< 2.00	µg/L	1	12/23/2011 12:48	73807



Sample Summary

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
11120954-001	Nat-East	Aqueous	5	12/20/2011 14:25
11120954-002	Nat-NW	Aqueous	5	12/20/2011 14:00



Dates Report

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Sample ID	Client Sample ID Test Name	Collection Date	Received Date Prep Date/Time	Analysis Date/Time
11120954-001A	Nat-East Standard Methods 18th Ed. 2540 F	12/20/2011 14:25	12/21/2011 10:00:00 AM	12/21/2011 13:50
11120954-001B	Nat-East EPA 600 375.2 Rev 2.0 1993 (Total) Standard Method 18th Ed. 4500-H B, Laboratory Analyzed Standard Methods 18th Ed. 2340 C Standard Methods 18th Ed. 2540 C (Total) Standard Methods 18th Ed. 2540 D	12/20/2011 14:25	12/21/2011 10:00:00 AM	12/22/2011 16:46 12/21/2011 16:44 12/22/2011 6:45 12/21/2011 14:13 12/21/2011 13:48
11120954-001C	Nat-East EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total) Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFAA	12/20/2011 14:25	12/21/2011 10:00:00 AM 12/21/2011 14:54 12/21/2011 14:53	12/22/2011 17:35 12/23/2011 12:31
11120954-001D	Nat-East EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved) Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFAA (Dissolved)	12/20/2011 14:25	12/21/2011 10:00:00 AM 12/23/2011 8:49 12/21/2011 15:53	12/23/2011 18:56 12/22/2011 16:33
11120954-001E	Nat-East Standard Methods 18th Ed. 5310 C, Organic Carbon	12/20/2011 14:25	12/21/2011 10:00:00 AM	12/23/2011 8:07
11120954-002A	Nat-NW Standard Methods 18th Ed. 2540 F	12/20/2011 14:00	12/21/2011 10:00:00 AM	12/21/2011 13:50
11120954-002B	Nat-NW EPA 600 375.2 Rev 2.0 1993 (Total) Standard Method 18th Ed. 4500-H B, Laboratory Analyzed Standard Methods 18th Ed. 2340 C Standard Methods 18th Ed. 2540 C (Total) Standard Methods 18th Ed. 2540 D	12/20/2011 14:00	12/21/2011 10:00:00 AM	12/23/2011 15:41 12/21/2011 16:46 12/22/2011 6:45 12/21/2011 14:15 12/21/2011 13:50
11120954-002C	Nat-NW EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total) Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFAA	12/20/2011 14:00	12/21/2011 10:00:00 AM 12/21/2011 14:54 12/21/2011 14:53	12/22/2011 17:40 12/23/2011 12:48
11120954-002D	Nat-NW EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved) Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFAA (Dissolved)	12/20/2011 14:00	12/21/2011 10:00:00 AM 12/23/2011 8:49 12/21/2011 15:53	12/23/2011 19:02 12/22/2011 16:50
11120954-002E	Nat-NW Standard Methods 18th Ed. 5310 C, Organic Carbon	12/20/2011 14:00	12/21/2011 10:00:00 AM	12/23/2011 8:07



Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R158102 SampType: MBLK Units mg/L

SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	75		< 75						12/22/2011

Batch R158102 SampType: LCS Units mg/L

SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	75		146	150	0	97.5	90	110	12/22/2011

Batch R158144 SampType: MBLK Units mg/L

SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						12/23/2011

Batch R158144 SampType: LCS Units mg/L

SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		20	20	0	97.8	90	110	12/23/2011

STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED

Batch R158038 SampType: LCS Units

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		7.02	7.00	0	100.3	99.1	100.8	12/21/2011

Batch R158038 SampType: DUP Units

SampID: 11120954-001BDUP

RPD Limit 10

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		8.09				8.080	0.12	12/21/2011

Batch R158038 SampType: DUP Units

SampID: 11120954-002BDUP

RPD Limit 10

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		8.01				8.020	0.12	12/21/2011

STANDARD METHODS 18TH ED. 2340 C

Batch R158019 SampType: MBLK Units mg/L

SampID: MB-R158019

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO ₃)	5		< 5						12/21/2011

Quality Control Results

<http://www.teklabinc.com/>
Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

STANDARD METHODS 18TH ED. 2340 C

Batch R158019 SampType: LCS		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Hardness, as (CaCO3)		5		1000	1000	0	100.0	90	110	12/21/2011

Batch R158019 SampType: MS		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Hardness, as (CaCO3)		5		560	400	160.0	100.0	85	115	12/22/2011

Batch R158019 SampType: MSD		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Hardness, as (CaCO3)		5		540	400	160.0	95.0	560.0	3.64	12/22/2011

STANDARD METHODS 18TH ED. 2540 C (TOTAL)

Batch R158082 SampType: MBLK		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Total Dissolved Solids		20		< 20						12/21/2011
Total Dissolved Solids		20		< 20						12/21/2011

Batch R158082 SampType: LCS		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Total Dissolved Solids		20		998	1000	0	99.8	90	110	12/21/2011
Total Dissolved Solids		20		1000	1000	0	100.2	90	110	12/21/2011

Batch R158082 SampType: MS		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Total Dissolved Solids		40		1620	1000	568.0	105.2	85	115	12/21/2011

Batch R158082 SampType: MSD		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Total Dissolved Solids		40		1640	1000	568.0	106.8	1620	0.98	12/21/2011

STANDARD METHODS 18TH ED. 2540 D

Batch R158073 SampType: MBLK		Units mg/L								Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Total Suspended Solids		6		< 6						12/21/2011



Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

STANDARD METHODS 18TH ED. 2540 D

Batch	R158073	SampType:	LCS			Units	mg/L			
SampID: LCS								Date Analyzed		
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Suspended Solids	6		101	100	0	101.0	85	115	12/21/2011	
Total Suspended Solids	6		91	100	0	91.0	85	115	12/21/2011	
Total Suspended Solids	6		100	100	0	100.0	85	115	12/21/2011	

Batch R158073		SampType: DUP		Units mg/L				RPD Limit 15			
SampID: 11120954-002B DUP										Date Analyzed	
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Total Suspended Solids		6		< 6				0	0.00	12/21/2011	

STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON

Batch R158167		SampType: MBLK		Units mg/L						
SampID: MB-R158167										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)		1.0		< 1.0						12/23/2011

Batch R158167		SampType: LCS		Units mg/L						
SampID: LCS-R158167										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)		5.0		50.8	48.2	0	105.4	89.6	109.5	12/23/2011

Batch R158167		SampType: MS		Units mg/L							
SampID: 11120954-002EMS											Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Total Organic Carbon (TOC)		1.0		6.7	5.0	2.290	88.4	80	120	12/23/2011	

Batch R158167		SampType: MSD		Units mg/L				RPD Limit 15			
SampID: 11120954-002EMSD											Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Analyzed	
Total Organic Carbon (TOC)		1.0		6.8	5.0	2.290	90.4	6.710	1.48	12/23/2011	

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 73867		SampType: MBLK		Units µg/L						
SampID: MB-73867										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	12/23/2011	
Zinc	10.0		< 10.0	10.0	0	0	-100	100	12/23/2011	

Batch 73867		SampType: LCS		Units µg/L						
SampID: LCS-73867										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Cadmium	2.00		48.1	50.0	0	92.2	85	115	12/23/2011	
Zinc	10.0		475	500	0	95.0	85	115	12/23/2011	

Client: Barr Engineering Company

Work Order: 11120954

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EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 73867		SampType: MS		Units µg/L					
SampID: 11120954-002DMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		43.4	50.0	0	86.8	75	125	12/23/2011
Zinc	10.0		451	500	0	90.3	75	125	12/23/2011

Batch 73867		SampType: MSD		Units µg/L				RPD Limit 20		
SampleID: 11120954-002DMSD										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Cadmium	2.00		44.0	50.0	0	88.0	43.4	1.37	12/23/2011	
Zinc	10.0		459	500	0	91.9	451.4	1.76	12/23/2011	

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 73808		SampType: MBLK		Units µg/L					
SampID: MB-73808									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	12/22/2011
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	12/22/2011
Zinc	10.0		< 10.0	10.0	0	0	-100	100	12/22/2011
Zinc	10.0		< 10.0	10.0	0	0	-100	100	12/22/2011

Batch 73808		SampType: LCS		Units µg/L						
SampID: LCS-73808										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Cadmium	2.00		51.8	50.0	0	103.6	85	115	12/22/2011	
Cadmium	2.00		52.3	50.0	0	104.6	85	115	12/22/2011	
Zinc	10.0		538	500	0	107.6	85	115	12/22/2011	
Zinc	10.0		535	500	0	107.1	85	115	12/22/2011	

Batch 73808		SampType: MS		Units µg/L					
SampleID: 11120954-002CMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		51.7	50.0	0	103.4	75	125	12/22/2011
Zinc	10.0		525	500	3.1	104.4	75	125	12/22/2011

Batch 73808		SampType: MSD		Units µg/L				RPD Limit 20		
SampID: 11120954-002CMSD										Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Cadmium	2.00		50.5	50.0	0	101.0	51.7	2.35	12/22/2011	
Zinc	10.0		517	500	3.1	102.7	525	1.57	12/22/2011	

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 73810		SampType: MBLK		Units µg/L						Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		2.00		< 2.00	2.00	0	0	-100	100	12/22/2011

Batch 73810		SampType: LCS		Units µg/L						Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		2.00		13.9	15.0	0	92.4	80	120	12/22/2011

Batch 73810		SampType: MS		Units µg/L						Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		2.00		17.5	15.0	5.2882	81.4	70	130	12/22/2011

Batch 73810		SampType: MSD		Units µg/L						RPD Limit 20	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Lead		2.00		17.5	15.0	5.2882	81.4	17.4966	0.01		12/22/2011

STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA

Batch 73807		SampType: MBLK		Units µg/L						Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		2.00		< 2.00	2.00	0	0	-100	100	12/23/2011

Batch 73807		SampType: LCS		Units µg/L						Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		2.00		13.3	15.0	0	88.8	80	120	12/23/2011

Batch 73807		SampType: MS		Units µg/L						Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lead		20.0		326	15.0	314.461	75.4	70	130	12/23/2011

Batch 73807		SampType: MSD		Units µg/L						RPD Limit 20	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Lead		20.0		327	15.0	314.461	80.9	325.769	0.25		12/23/2011



Receiving Check List

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 11120954

Client Project: National MTS-25/86-0003

Report Date: 28-Dec-11

Carrier: Ricky Schmidt

Received By: TWM

Completed by:

On:

21-Dec-11

Timothy W. Mathis

Reviewed by:

On:

21-Dec-11

Heather A. White

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C 3.6

Type of thermal preservation?

None ☐

Ice ☒

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☒

NA ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water - at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

Any No responses must be detailed below or on the COC.

Custody seal(s) intact on shipping container/cooler.



Teklab Chain of Custody

Pg. 1 of 1

Workorder 11120254

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax: (618)344-1005

Barr Engineering Co.

Are the samples chilled? ☒ Yes ☐ No with: ☒ Ice ☐ Blue ice

Preserved in ☒ Lab ☐ Field

1001 Diamond Ridge, Suite 1100

Cooler Temp 31.6 Sampler Chris Schulte

Jefferson City MO 65109

National MTS - 25/86-0003

Comments

Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com
Matrix is surface water.
Metals = Cd, Pb, Zn
KS 12/21/11
Custody Seal intact upon Pick up

Contact Allison Olds

eMail aolds@barr.com

Phone 573-638-5007

Requested Due Date Standard

Billing/PO Per contract with Doe Run

Lab Use	Sample ID	Sample Date/Time	Preservative Matrix	pH	T.S.S.	Total Dissolved Solids	Sulfate	Settleable Solids	T.O.C.	Total Metals	Dissolved Metals	Teklab, Inc. Courier Pick Up
11120254 001	Nat-East	12/20/11 14:25	Unpres S Aqueous	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
002	Nat - NW	12/20/11 14:00	Unpres S Aqueous	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Relinquished By *	Date/Time	Received By	Date/Time
Chris Schulte / Barr	12/20/11 16:00	[Signature]	12/21/11 8:45
[Signature]	12/21/11 10:00	[Signature]	12/21/11 1000

* The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.